



MATERIALS AND PROCESS ANALYSIS

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Through its “Materials and Process Analysis” business division, Fraunhofer IKTS provides users and manufacturers of materials and components with a comprehensive portfolio of methods for testing, characterization, and analytical methods for material properties and production processes. The focus here is on ceramic materials, components, and processes for technical applications, including lightweight construction as well as materials for microelectronics, nanoelectronics, photonics and biomedicine.

How do microstructure and composition influence the macroscopic properties of a material, and hence the product itself? Can a less expensive material replace an existing one, without any loss to the quality of the product? How can production processes be configured to make them stable, cost-effective, efficient and sustainable? What quality standards must be observed and enforced? In order to respond to these and other questions associated with the application and production of materials, the complex interrelationships that exist among raw materials, production technology, material structures and properties, as well as the operating conditions must be considered as a whole. In this regard, not only are the key performance indicators identified – they are interpreted as well.

Fraunhofer IKTS sees itself as first contact for any issues that involve chemical, thermal, microstructural, mechanical, tribological, electrical and electrochemical analysis, assessment and optimization of materials and components, as well as the manufacturing processes involved. Aside from all of the necessary standard analytical methods, the institute also has the world’s most exceptional tools at its disposal – especially to identify, define and quantify the properties at extreme temperatures. With its vast reservoir of expertise in processes, materials and analysis as its foundation, Fraunhofer IKTS consults with and assists clients with the development of new materials and products, clarification of complex failure mechanisms and achievement of legal and quality standards. With accredited laboratories for determining characteristic values for powders, suspensions, thermophysical and electrical/dielectrical materials, electrical components and component systems, the institute is in a position to perform a variety of quality assurance and certification tasks commissioned by the customer – from products and processes to the study and analysis of prototypes.

Fraunhofer IKTS is a reliable, manifold accredited and regularly audited service provider devoted to the investigation and evaluation of materials science principles, application-specific questions and metrological developments.